

WE CLAIM

1. A utility line support structure comprising:  
a hollow fiber reinforced beam having a transverse hole extending therethrough;

and

5 a hollow reinforcing member placed in an interior of the beam to coincide with the transverse hole, the reinforcing member having an inner diameter that is approximately the same as a diameter of the transverse hole and an outer diameter that is greater than said transverse hole diameter;

10 wherein the reinforcing member is positioned within the beam such that a bolt can be inserted through both the beam itself and the reinforcing member.

2. The utility line support structure of claim 1, wherein the reinforcing member has a length sufficient to fit within a first interior wall and a second, opposing, interior wall within the beam.

15 3. The utility line support structure of claim 1, wherein the reinforcing member is placed within the beam after the beam has been formed, the reinforcing member being slid into an open end of the beam and positioned in alignment with the transverse hole.

20 4. The utility line support structure of claim 1, wherein the inner diameter of the reinforcing member is less than or equal to about 2.5 centimeters.

25 5. The utility line support structure of claim 4, wherein the outer diameter of the reinforcing member is greater than about 2.5 centimeters and is less than about 5 centimeters.

30 6. The utility line support structure of claim 1, wherein the reinforcing member is selected from the group consisting of metal, plastic and a fiber reinforced composite material.

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7. The utility line support structure of claim 1, wherein the reinforcing member comprises a fiber reinforced resin.

5 8. The utility line support structure of claim 7, wherein the resin is reinforced with glass or other non-electrically conducting fiber.

9. The utility line support structure of claim 7, wherein the resin comprises polyester.

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10. The utility line support structure of claim 1, wherein the reinforcing member is held in place with an adhesive.

11. The utility line support structure of claim 1, wherein the reinforcing member is held in place by filling the beam with a foam.

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12. The utility line support structure of claim 1, further comprising an end cap.

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13. The utility line support structure of claim 12, wherein the end cap entraps an end of the support structure, thereby providing mechanical support to the support structure and preventing moisture from penetrating into the support structure.

14. The utility line support structure of claim 1, further comprising a sheath placed within the transverse hole and within the reinforcing member to further seal the interior of the beam.

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15. The utility line support structure of claim 1, wherein the transverse hole and reinforcing member are used to secure the reinforced beam to a utility pole.

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16. The utility line support structure of claim 1, wherein the transverse hole and reinforcing member are used to secure an insulator to the reinforced beam.

17. The utility line support structure of claim 1, wherein the reinforced beam has a rectangular cross-section having a first axis and a second axis, with a first reinforcing member along the first axis mounting the beam to a utility pole and a second reinforcing member along the second axis mounting an insulator.

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18. A method of manufacturing a utility line support structure, the method comprising steps of:  
pultruding a hollow fiber reinforced beam having a first end and a second end;  
forming a transverse through hole within the beam;  
positioning a reinforcing member within the beam in conjunction with the transverse hole, the reinforcing member having an outer diameter that is greater than a diameter of the transverse hole; and  
securing the reinforcing member in place.

19. The method of claim 18, wherein the step of securing the reinforcing member in place comprises adhering the reinforcing member in place with an adhesive.

20. The method of claim 18, wherein the step of securing the reinforcing member in place comprises filling the beam with a foam.

21. The method of claim 18, further comprising a step of sealing the ends of the beam.

22. The method of claim 21, wherein the step of sealing the ends of the beam comprises adhering end caps to each end of the beam.

23. The method of claim 22, wherein the end caps each entrap a respective end of the beam.

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